Fig.1.

	1	11	21	31	41	51
Rs-AFP1	QKLCERPSGT	WSGVCGNNNA	CKNQCINLEK	ARHGSCNYVF	PAHKCICYFP	C
Rs-AFP2	QKLCQRPSGT	WSGVCGNNNA	CKNQCIRLEK	ARHGSCNYVF	PAHKCICYFP	C
Rs-AFP3	-KLCERSSGT	WSGVCGNNNA	CKNQCIRLEG	AQHGSCNYVF	PAHKCICYFP	C
Rs-AFP4	QKLCERSSGT	WSGVCGNNNA	CKNQCINLEG	ARHGSCNYIF	PYHRCICYFP	C
Br-AFP1	QKLCERPSGT	WSGVCGNNNA	CKNQCIN			
Br-AFP2	QKLCERPSGT	?SGVCGNNNA	CKNQCIR			
Bn-AFP1	QKLCERPSGT	WSGVCGNNNA	CKNQCINLEK			
Bn-AFP2	QKLCERPSGT	WSGVCGNNNA	CKN			
Sa-AFP1	QKLCERPSGT	WSGVCGNNNA	CKNQC			
Sa-AFP2	QKLCQRPSGT	WSGVCGNNNA	CRNQCI			
At-AFP1	QKLCERPSGT	WSGVCGNSNA	CKNQCIN			

Fig.2.

```
GTTTTATTAGTGATCATGGCTAAGTTTGCGTCCATCATCGCACTT    45
                M  A  K  F  A  S  I  I  A  L

CTTTTTGCTGCTCTTGTTCTTTTTGCTGCTTTCGAAGCACCAACA    90
 L  F  A  A  L  V  L  F  A  A  F  E  A  E  T

ATGGTGGAAGCACAGAAGTTGTGCGAAAGGCCAAGTGGGACATGG   135
 M  V  E  A  Q  K  L  C  E  R  P  S  G  T  W

TCAGGAGTCTGTGGAAACAATAACGCATGCAAGAATCAGTGCATT   180
 S  G  V  C  G  N  N  N  A  C  K  N  Q  C  I

AACCTTGAGAAAGCACGACATGGATCTTGCAACTATGTCTTCCCA   225
 N  L  E  K  A  R  H  G  S  C  N  Y  V  F  P

GCTCACAAGTGTATCTGCTACTTTCCTTGTTAATTTATCGCAAAC   270
 A  H  K  C  I  C  Y  F  P  C  *

TCTTTGGTGAATAGTTTTTATGTAATTTACACAAAATAAGTCAGT   315

GTCACTATCCATGAGTGATTTTAAGACATGTACCAGATATGTTAT   360

GTTGGTTCGGTTATACAAATAAAGTTTTATTCACCAAAAAAAAAA   405

AAAAAAAAA                                       414
```

Fig.3.

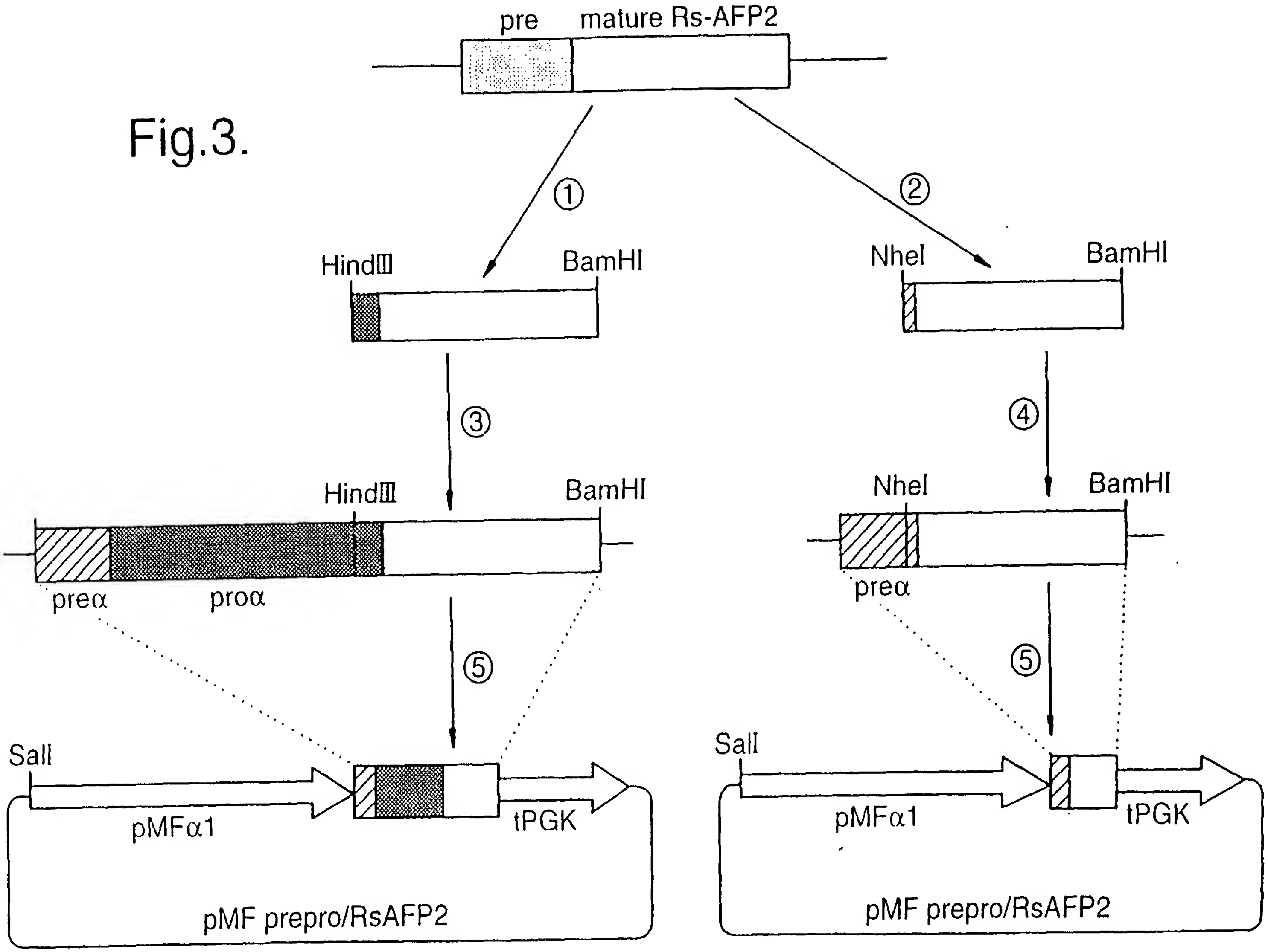

pre
mature Rs-AFP2
①
②
HindIII
BamHI
NheI
BamHI
③
④
HindIII
BamHI
NheI
BamHI
preα
proα
preα
⑤
⑤
SalI
pMFα1
tPGK
pMF prepro/RsAFP2
SalI
pMFα1
tPGK
pMF prepro/RsAFP2

Fig.4.

```
                1        10        20        30        40        50
                |        |         |         |         |         |
Rs-AFP2         ZKLCQRPSGTWSGVCGNNNACKNQCIRLEKARHGSCNYVFPAHKCICYFPC
yRs-AFP2        Q..................................................
SIα2            -RV.MKG.AGFK.L.MRDQN.AQV.L-Q.GWGG.N.DG.M--RQ.K.IRQ.
SERIES A
yRs-AFP2/Q5M    Q...M..............................................
yRs-AFP2/T10G   Q........G.........................................
yRs-AFP2/W11S   Q.........S........................................
yRs-AFP2/G16M   Q..............M...................................
yRs-AFP2/A31W   Q.............................W....................
yRs-AFP2/Y38G   Q....................................G.............
yRs-AFP2/F40M   Q......................................M...........
yRs-AFP2/K44Q   Q..........................................Q.......
yRs-AFP2/Y48I   Q..............................................I...
SERIES B
yRs-AFP2/T10A   Q........A.........................................
yRs-AFP2/H33A   Q...............................A..................
yRs-AFP2/Y38A   Q....................................A.............
yRs-AFP2/F40A   Q......................................A...........
SERIES C
yRs-AFP2/P7-    Q.....-............................................
yRs-AFP2/P41-   Q.......................................-..........
SERIES D
yRs-AFP2/P7R    Q.....R............................................
yRs-AFP2/G9R    Q.......R..........................................
yRs-AFP2/S12R   Q..........R.......................................
yRs-AFP2/I26R   Q........................R.........................
yRs-AFP2/L28R   Q..........................R.......................
yRs-AFP2/N37R   Q...................................R..............
yRs-AFP2/V39R   Q.....................................R............
yRs-AFP2/A42R   Q........................................R.........
yRs-AFP2/I46R   Q............................................R.....
yRs-AFP2/F49R   Q...............................................R..
```

	^{1}Q	^{2}K	^{3}L	^{4}C	^{5}Q	^{6}R	^{7}P	
	CAG	AAG	TTG	TGC	CAA	AGG	CCA	AG
OWB41:AATAAGCTTTGGACAAGAGA	CAG	AAG	TTG	TGC	ATG	AGG	CCA	AG
	Q	K	L	C	M	R	P	

	^{3}L	^{4}C	^{5}Q	^{6}R	^{7}P	^{8}S	^{9}G	^{10}T	^{11}W
	TTG	TGC	CAA	AGG	CCA	AGT	GGG	ACA	TGG
OWB42:	TTG	TGC	CAA	AGG	---	AGT	GGG	ACA	TGG
	L	C	Q	R	-	S	G	T	W

	^{7}P	^{8}S	^{9}G	^{10}T	^{11}W	^{12}S	
	CCA	AGT	GGG	ACA	TGG	TCA	GG
OWB43:	CCA	AGT	GGG	**GGT**	TGG	TCA	GG
	P	S	G	**G**	W	S	

	^{8}S	^{9}G	^{10}T	^{11}W	^{12}S	^{13}G	^{14}V
	AGT	GGG	ACA	TGG	TCA	GGA	GTC
OWB44:	AGT	GGG	ACA	**TCC**	TCA	GGA	GTC
	S	G	T	**S**	S	G	V

	^{13}G	^{14}V	^{15}C	^{16}G	^{17}N	^{18}N	^{19}N	
	GGA	GTC	TGT	GGA	AAC	AAT	AAC	GC
OWB45:	GGA	GTC	TGT	**ATG**	AAC	AAT	AAC	GC
	G	V	C	**M**	N	N	N	

FIG. 5A

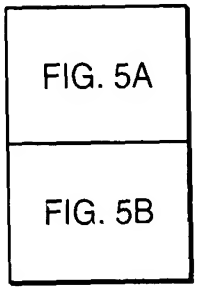


FIG. 5

```
          35S   36C   37Q   38Y   39V   40F
          TCT   TGC   AAC   TAT   GTC   TTC   CC
    OWB77:TCT   TGC   AAC   GGT   GTC   TTC   CC
          S     C     Q     G     V     F

          36C   37Q   38Y   39V   40F   41P   42A
          TGC   AAC   TAT   GTC   TTC   CCA   GCT   C
    OWB47:TGC   AAC   TAT   GTC   ATG   CCA   GCT   C
          C     Q     Y     V     M     P     A

          37Q   38Y   39V   40F   41P   42A   43H   44K
          AAC   TAT   GTC   TTC   CCA   GCT   CAC   AAG   TG
    OWB48:AAC   TAT   GTC   TTC   ---   GCT   CAC   AAG   TG
          Q     Y     V     F     -     A     H     K

          40F   41P   42A   43H   44K   45C   46I
          TTC   CCA   GCT   CAC   AAG   TGT   ATC   TG
    OWB49:TTC   CCA   GCT   CAC   CAA   TGT   ATC   TG
          F     P     A     H     Q     C     I

          45C   46I   47C   48Y   49F   50C
          TGT   ATC   TGC   TAC   TTT   CCT   TG
    OWB50:TGT   ATC   TGC   ATC   TTT   CCT   TG
          C     I     C     I     F     C
```

FIG. 5B

Fig.6.

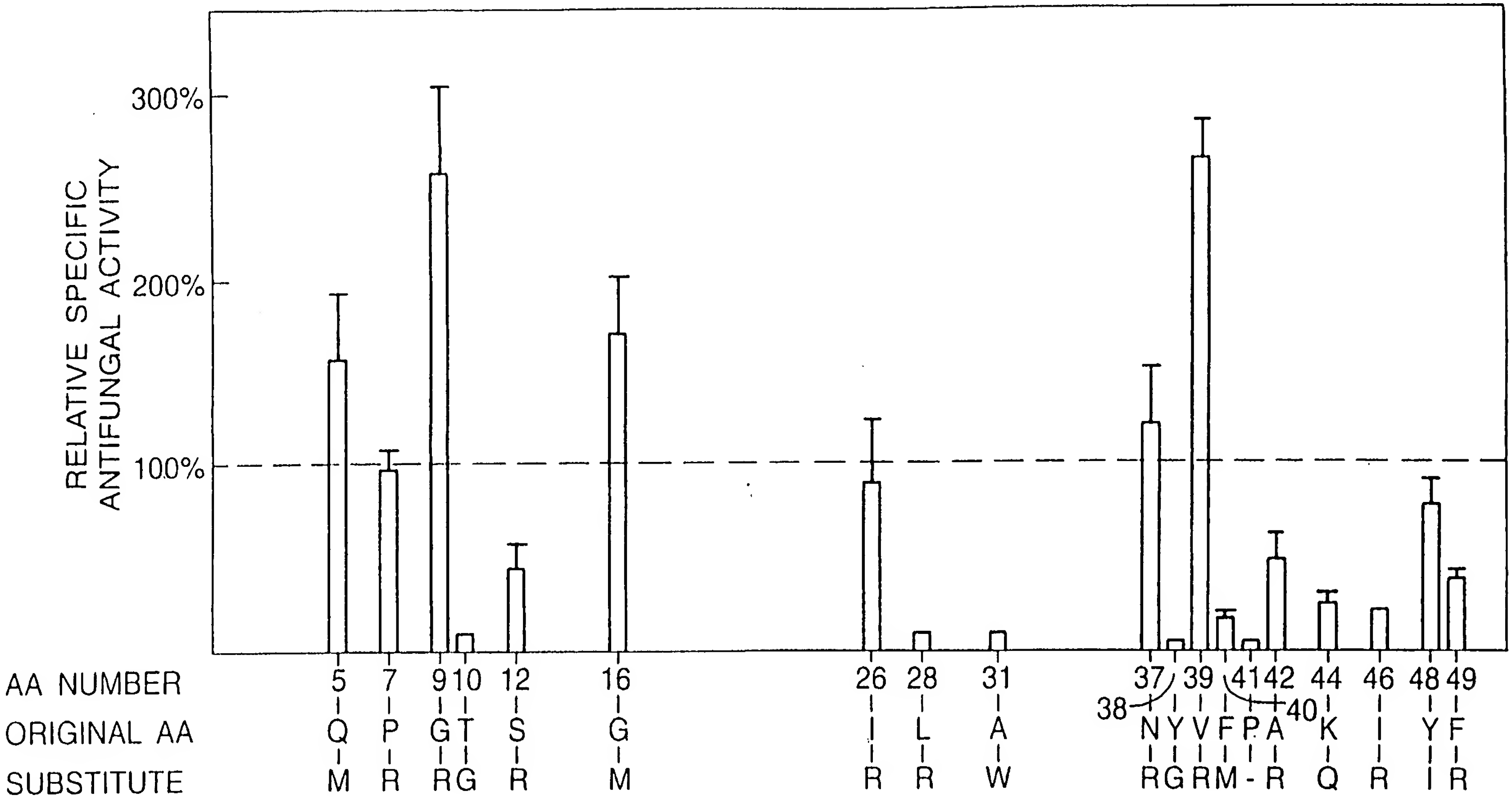
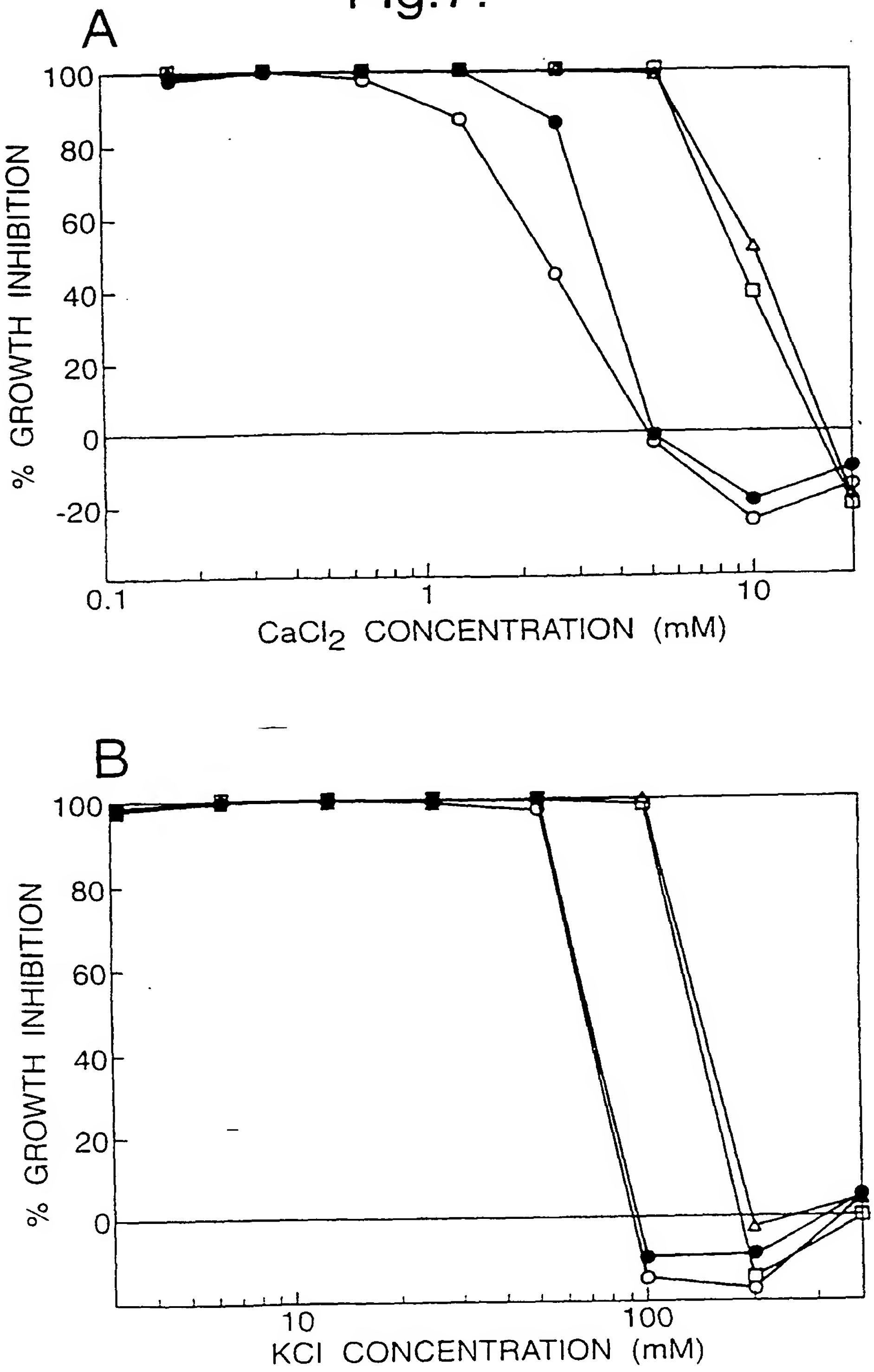

RELATIVE SPECIFIC ANTIFUNGAL ACTIVITY
300%
200%
100%
AA NUMBER
ORIGINAL AA
SUBSTITUTE
5 Q M
7 P R
9 G R
10 T G
12 S R
16 G M
26 I R
28 L R
31 A W
37 N R
38 Y G
39 V R
40 F M
41 P -
42 A R
44 K Q
46 I R
48 Y I
49 F R

Fig.7.


A
100
80
60
40
20
0
-20
% GROWTH INHIBITION
0.1
1
10
CaCl2 CONCENTRATION (mM)
B
100
80
60
40
20
0
% GROWTH INHIBITION
10
100
KCl CONCENTRATION (mM)